

## Shelter-based Food Preparation Intervention and Subjective Well-being of Pediatric Cancer Patients in Manila, Philippines

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Among the major concerns in pediatric cancer patients are their emotional and social well-being arising from the unpleasant physical and psychological side effects of treatments. However, studies have shown that food preparation improves cancer patients' emotional and social well-being. The general objective of the study was [1] to assess the relationship between food preparation intervention and subjective well-being (SWB) of cancer patients, as well as [2] to determine the children's socio-emotional SWB before and after the food preparation activity implementation based on the perspectives of the patients, parents, and shelter staff. Eight pediatric patients between 8–20 yr old, their guardians, and two shelter staff were purposively selected. A food preparation activity module was designed and implemented as part of the intervention measures. The patients, parents, and staff were interviewed to assess the patients' emotional and social SWB before and after the activity implementation. Content and thematic analyses were used to analyze the data. The results of the study revealed that the patients' emotional and social SWB improved right after implementation and even 3 mo after the intervention. The positive aspects of emotional SWB documented among the patients after implementation were happiness, hopefulness, gratitude, and self-confidence. The positive contributions of the activity 3 mo after its implementation were still evident. Regarding social SWB after the intervention, it was established that cooking activities encourage collaboration and social bonding among family members and the patients themselves. Three (3) mo after intervention, the patients became more outgoing, friendly, and helpful, especially towards their fellow cancer patients. The study can help researchers explore different age groups and chronic disease cases using similar food preparation activities and modules as a guide.

Keywords: cooking activity, food preparation, nutrition education, subjective well-being

### INTRODUCTION

Subjective well-being (SWB) is defined as the “peoples' evaluation of their experiences in specific areas and activities of their lives” (Stone and Mackie 2013). It consists of cognitive and affective elements. The cognitive

element refers to what one thinks about life satisfaction as a whole and in different areas of life such as work and relationships; the affective element refers to either positive or negative emotions, moods, and feelings (Albuquerque 2010). The positive and negative emotions refer to the emotional SWB. The social SWB, on the other hand, “covers the ability to communicate, develop meaningful

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relationships with others, and maintain a support network that helps you overcome loneliness" (Davis 2019).

Health is one of the key determinants of SWB (Schuz 2009). Poor health can affect SWB negatively, especially when adjustments during health crises are not achieved (Cho *et al.* 2011). For instance, cancer can affect the physical, emotional, and social well-being of a child patient; the physical side effects create negative emotional and social effects (American Cancer Society 2014). Apart from the physical late side effects of cancer treatment, the psychological and behavioral late effects are evident. More often, depression and anxiety are common among pediatric cancer survivors (Bajčiová n/d). Treatment procedures produce emotional distress, which is usually manifested in "crying, screaming, and struggling with parents or medical personnel (McKnight 2004). Among the psychological effects of cancer among children is negative perception of self-appearance, which affects their schooling performance and social life. In addition, it creates low self-esteem and depression (American Cancer Society 2015).

The physical effects of the treatment – such as hair loss, weight gain/loss, physical disfigurement, and frequent absenteeism – cause psychological adjustment and negatively impact social life. The emotional side effects of cancer treatment greatly affect the child's self-esteem, especially his relationship with his peers at school. According to the American Cancer Society (2015) social and emotional concerns among children with cancer are normal, depending on the age of the children and the extent of treatment. Adolescents tend to be affected by their illness and treatment, which impedes them from going to parties, sports events, school, and hanging out with friends. In addition, because of physical changes, they cannot go out to avoid the stigma of being a cancer kid (Butow *et al.* 2010).

Studies suggest that the quality of life of cancer patients must be given utmost importance to offset the unpleasant consequences of treatment and ease both patients' and their families' anxieties. Several psychosocial programs were initiated in other health and home care institutions to take care of emotional and social concerns brought about by health crises (Freire *et al.* 2014).

Some studies on nutrition intervention programs revealed positive outcomes (Barak 2011; Ben-arye *et al.* 2016). The effects of cooking classes on cancer patient-participants revealed increased knowledge and skills, as well as efficiency in food preparation and meal planning (Chi 2016). Cooking classes also helped improve the emotional, social, and spiritual well-being of cancer patients (Ben-arye *et al.* 2016).

Another study proved that cooking classes will not only improve knowledge but can also help develop emotional and social relationships. Ben-arye *et al.* (2016) implemented a cuisine program among adult cancer patients, where cancer patients are helped to use healthy ingredients like herbs. The findings of the study revealed that good relationships were developed, as emotional and spiritual support was also developed. There was also an increase in knowledge and mindfulness of nutrition.

Among children, a recent study on healthy cooking classes for hospitalized pediatric cancer patients and children cancer survivors used healthy cooking framework constructs in meal preparation. Results showed that experiential cooking helped children to choose the right food for their condition. Moreover, children's attitudes toward healthy food improved (Raber *et al.* 2017).

With the success of food preparation programs among adult cancer patients, there has been a growing interest to explore its efficacy in other cancer groups (Chi 2016). Studies on the impact of nutrition intervention (*e.g.* food preparation programs) on children with cancer need further exploration, as most reviews are usually focused on the adult population. Little research has been done on the feasibility of including healthy cooking classes in pediatric patients (Raber *et al.* 2017). Most studies on nutrition education in childhood cancer were designed after the treatment [Touyz *et al.* (2018), as cited by Beaulieu-Gagnon *et al.* (2019)].

In the Philippines, particularly in Metro Manila, there are temporary shelters that cater to pediatric cancer patients coming from the different provinces of the country. The temporary home provides holistic services conducive to healing while the children are undergoing medical treatment and evaluation. Most of them stay with their parents for more than a month in the shelter (The Child Haus Manila 2015).

The objective of the study was to assess the relationship between food preparation intervention and the SWB of pediatric cancer patients. To carry out this goal, activity modules were designed for pediatric patients. The study also aimed to determine the children's emotional and social SWB before and after food preparation implementation using the three activities of daily feeding, nutrition education, and cooking classes as bases for evaluation.

The study is timely and opportune for the development and implementation of a food intervention program that addresses the nutritional and psychosocial concerns of children with cancer.

## MATERIALS AND METHODS

### Research Design

The case study research design was used to generate more in-depth and richer information on the SWB of each pediatric cancer patient undergoing active treatment. Both in-depth interviews and naturalistic observations were employed to capture each case's uniqueness. Themes or patterns of meanings were gathered and interpreted to analyze the data.

### Sample and Sampling Procedure

As the respondents were few and limited to those who stay in a shelter facility, purposive non-probability sampling was used. The sample population was selected on the basis of certain inclusion criteria for the pediatric patients – namely, [1] qualified residents with stay-in-guardians for more than 3 mo, [2] 7–21 yr old, [3] diagnosed with any form of childhood cancer, [4] capable of performing simple cooking tasks such as stirring and slicing, and [5] willing to stay in the program for 3 mo until the class graduation. There were eight children ages 8–20 yr old who qualified and participated with their guardians. Aside from the patients with their parents, two of the shelter staff were also included as participants.

### Ethical Considerations

All ethical issues were addressed to ensure the safety of the participants and the researcher. A licensed psychologist supervised all interviews. The Far Eastern University–Nicanor Reyes Memorial Foundation Institutional Ethics Review Committee (FEU-NRMF IERC) located at Fairview, Quezon City reviewed and approved the proposal, with study protocol code FEU-NRMF IERC 2A19-0034.

### Locale of the Study

The study was conducted in The Child Haus Manila, one of the biggest temporary shelters for indigent children with cancer who need a place to stay during their treatment. The institution was selected because it has the space, kitchen facilities, and manpower to implement food preparation activities. More importantly, it was chosen as the locale of the study because the shelter administrator was looking for a means to improve the shelter's existing feeding program. This need offered the opportunity to carry out food preparation activities to assess if the intervention will address the emotional and social concerns of children undergoing cancer treatments.

### Research Instruments

**Interview questionnaires.** Three types of questionnaires were prepared – namely, [1] initial, [2] short-term, and [3] medium-term. Appendix Table I outlines the target information from each type of questionnaire.

**Food preparation activity modules.** Modules for the food preparation activity were developed and translated into Filipino. The modules are need-based, age-appropriate, grounded on research, and promotive of the use of indigenous and natural ingredients. The module consisted of eight topics, namely: [1] meal management to address the loss of appetite, [2] use of different herbs and spices to manage taste changes, [3] management of nausea using easy recipes, [4] foods to manage and prevent undernutrition, [5] foods to manage mouth sores and mucositis, [6] healthy breakfast, [7] healthy shakes/juices and managing diarrhea, and [8] healthy desserts and snacks.

Each topic consists of a series of activities to reinforce learning. Lesson plans were designed to organize the presentation of each topic. For each lesson plan, the order of presentation is as follows: [1] title of the topic, [2] short rationale or background for learning the topic, [3] outcome-based objectives of the activity, [4] materials to prepare and persons in charge of the day's tasks, [5] featured ingredient/s, and [6] name of the meal/s to be prepared for the entire activity.

**Field notes.** Field notes were taken during cooking classes and nutrition education activities to document the child's physical concerns, emotions, and social interaction during activities.

Data collection is detailed in Appendix II and data analysis in Appendix III.

## RESULTS

### Demographic Profile

After the screening process, eight pediatric participants from the age group between 7–21 yr old were qualified for the study. Aside from the pediatric patients and their parents, two shelter staff were also included in the study (Appendix IV).

### Emotional SWB of Patients

Emotional SWB – as operationally defined in this study – refers to the positive and negative emotions such as joy, elation, contentment, self-esteem, affection, happiness, sadness, loneliness, and similar terms felt by the children before and after the food preparation activities.

Positive and negative emotions of the patients, parents, and shelter staff were gathered during the three interview sessions on: [1] 28 Sep 2019 (initial assessment or the baseline information), [2] 23 Nov 2019 (after the participant's graduation; short-term assessment/right after the intervention), and [3] 29 Feb 2020 (medium-term assessment 3 mo after the intervention).

**Initial Assessment: Emotional SWB before the Intervention**

The initial assessment interview results in Table 1 show positive and negative emotions based on the patients',

parents', and shelter staff's perspectives. The children's positive emotions included happiness, optimism, gratitude, and acceptance, whereas the negative emotions included sadness, anxiety, fear, irritability, and homesickness.

**Table 1.** Emotional SWB of the patients before, after, and 3 mo after the food preparation activities (patients, parents, and shelter staff perspectives).

Initial assessment (Patients)	f (n = 8)	Short-term assessment (Patients)	f (n = 8)	Medium-term assessment (Patients)	f (n = 5)
<b>Happiness</b>		<b>Happiness</b>		<b>Happiness</b>	
Due to relief after treatment	4	Due to eating delicious food	6	Due to application of previous learnings from cooking activity	1
Due to parental support		Due to cooking activity		Due to eating delicious food	
Due to bonding moments with parents	2	Due to learnings	5	Due to socialization	1
Due to shelter activities	1	Due to collaboration and bonding with family and peers during cooking	4	<b>Hope, optimism, and positive outlook</b>	1
	2			Learning brings hope of getting healed	2
<b>Optimism and positive outlook</b>		<b>Hope, optimism, and positive outlook</b>		<b>Gratitude</b>	
Illness makes a person stronger emotionally	4	Hopeful about getting well	1	For previous learnings	2
<b>Gratitude</b>		<b>Gratitude</b>		<b>Self-confidence</b>	
For parental support	1	Thankful for the things learned during the cooking activity	1	Due to skills developed	2
				<b>Feeling of relief</b>	
<b>Acceptance</b>		<b>Self-confidence</b>		Cooking activity can relieve fatigue/stress	1
Acceptance of changes due to illness	1	Due to skills developed	2	<b>Appreciation</b>	
				Appreciation for the dishes cooked in the previous cooking lessons	2
(Parents)	f (n = 8)	(Parents)	f (n = 8)	(Parents)	f (n = 5)
<b>Happiness</b>		<b>Happiness</b>		<b>Happiness</b>	
Due to receiving treatment	4	Due to cooking activity	7	Due to learnings from previous cooking activity	3
<b>Optimism and positive outlook</b>		Due to eating delicious food		Due to eating delicious food	2
Illness brings optimism	1	Due to eating healthy food	6	Due to socialization	2
Illness makes a person stronger	1	Due to collaboration and bonding with family member during cooking activity		<b>Hope, optimism, and positive outlook</b>	
		<b>Self-confidence</b>		Healthy eating brings optimism	2
		Due to skills developed	2		
(Shelter staff)	f (n = 2)	(Shelter staff)	f (n = 2)	(Shelter staff)	f (n = 5)
<b>Happiness</b>		<b>Happiness</b>		<b>Happiness</b>	
Due to relief after treatment	5	Due to the cooking activity that diverted their attention from their illness	4	Due to learnings from previous cooking activity	3
Due to social interaction	6	Due to cooking activity	4	<b>Gratitude</b>	
Due to shelter activities	2			For parental support	1
Due to service during shelter activities	1				
<b>Optimism and positive outlook</b>		Due to eating delicious food	6		
Illness brings optimism	1	Due to bonding among friends and family members during cooking activity	3		
Illness makes a person stronger	1	<b>Contentment</b>			
<b>Gratitude</b>		Feeding brings contentment	2		
Gratitude to parents	2	<b>Excitement</b>			
<b>Acceptance</b>		Cooking activity brings excitement	5		
Acceptance of challenges during treatment		<b>Self-Confidence</b>			
		Due to skills developed	1		

Parents also expressed sadness, fear, and irritability. On the other hand, shelter staff expressed anxiety, fear, and irritability.

### **Short-term Assessment: Emotional SWB Immediately after the Intervention**

**Positive emotions.** Happiness due to eating delicious food was one source of happiness among Patients 1, 2, 3, 4, 5, and 6. Meanwhile, Parents 1, 2, 3, 5, 7, and 8 said perceived that happiness is due to eating delicious food. The shelter staff perceived this happiness among six children – particularly for Patients 2, 3, 4, 6, 7, and 8. This assessment is linked to the daily feeding and cooking activities, where the patients and the parents eat prepared meals together. Five of the patients in the study mentioned that one of their happiness sources is the cooking activity. This was also perceived by seven parents of their children – Patients 1, 2, 4, 5, 6, 7, and 8. Meanwhile, the shelter staff perceived this among four patients – specifically Patients 1, 3, 4, and 6. Four of the children expressed their happiness due to learning. Patients 1, 3, 6, and 7 mentioned that their happiness was due to collaboration and bonding. This was also observed by the parents of Patients 1, 2, 3, 4, 5, and 6. Meanwhile, the shelter staff observed this for Patients 3, 6, and 7.

Patient 8 mentioned that his learnings from the activities have brought him hope in getting well. She also expressed her gratitude for the things learned during the cooking activity. Meanwhile, two patients (Patients 6 and 7) expressed their self-confidence due to skills developed. On the other hand, the parents of Patients 1, 2, 3, and 8 perceived their self-confidence due to the skills that were developed. Meanwhile, one of the shelter staff observed self-confidence in Patient 6.

Meanwhile, four of the parents mentioned how the activities brought relief to their children. The activities they immersed themselves in were like therapy sessions that brought relief from their medical condition. Among the parents and shelter staff, Patients 1, 2, 4, 5, 6, and 7 were perceived to have experienced excitement in the activity. Among shelter staff, Patient 1 was perceived to be content due to the feeding activity provided in the shelter.

### **Medium-term Assessment: Emotional SWB 3 mo after the Intervention**

**Positive emotions.** One of the patients, particularly Patient 8 (20 yr old, female), mentioned that she felt happy because of what she learned from the previous cooking activity; she also enjoyed socialization during the previous cooking classes. Based on some parents' perspectives, particularly for Patients 4 and 5, eating delicious food was one source of happiness. Meanwhile,

Patient 8 expressed her hopes to be healed. Aside from taking medications, she expressed her hopes to be healed because of the knowledge she learned from cooking. She has also been passionate about cooking and she expressed that cooking can relieve stress. Furthermore, Patients 7 and 8 mentioned gratitude for previous learnings; one of them expressed self-confidence due to skills developed.

Three (3) mo after the intervention, Patients 1 and 7 still expressed their appreciation for the dishes cooked in the previous cooking lessons.

### **Social SWB of Patients**

Social SWB in this study was operationally defined as children's positive or negative communication and interaction with/among family and friends before and after the food preparation activities.

A combination of negative and positive observations based on the parents' and shelter staff's perspectives was documented. Table 2 indicates the themes that appeared related to the social SWB of children before the activity (initial assessment), after the graduation (short-term assessment), and 3 mo after the graduation (medium-term assessment).

### **Initial Assessment: Social SWB before the Intervention**

**Positive aspects of social well-being.** As shown in Table 2, under the initial assessment, one of the positive aspects of social SWB among children was enhanced family support due to the following reasons: availability of physical care and support from parents, availability of support from relatives, and encouragement emotional support from parents. Meanwhile, the negative aspects include fewer opportunities for interaction due to physical limitations due to sickness and a barrier to play, which has led to self-isolation. Another negative aspect is less communication with parents due to avoidance to avoid parents from getting worried.

### **Short-term Assessment: Social SWB Right after Intervention**

**Positive aspects of social well-being.** Short-term assessment refers to the assessment based on interviews regarding the emotional and social SWB immediately after activity implementation. The food preparation activities resulted in enhancing the children's social subjective social well-being. From the children's interviews, it was discovered that these activities encourage collaboration and family bonding. Based on Table 2 under short-term assessment, three of the interviewed children perceived collaboration as one of the positive aspects of social SWB. One child perceived social interaction as another positive effect.

**Table 2.** Social SWB of patients before, after, and 3 mo after the food preparation activities (patients, parents, and shelter staff perspectives).

Initial assessment (Patients)	f (n = 8)	Short-term assessment (Patients)	f (n = 8)	Medium-term assessment (Patients)	f (n = 5)
<b>Enhanced family support</b>		<b>Collaboration</b>		<b>Social interaction</b>	
Availability of physical care and support from parents	2	Cooking activity encourages children to be helpful	3	Previous cooking activity encourages children to be more friendly	1
Availability of support from relatives	1	<b>Social interaction</b>		Cooking activity encourages children to be more helpful at home	1
Encouragement and Emotional support from parents	3	Cooking activity encourages family bonding	1		
<b>(Parents)</b>	<b>f (n = 8)</b>	<b>(Parents)</b>	<b>f (n = 8)</b>	<b>(Parents)</b>	<b>f (n = 5)</b>
<b>Enhanced family support</b>		<b>Social interaction</b>		<b>Social interaction</b>	
Availability of physical care and support from parents	4	Cooking activity encourages bonding among family and friends	5	Previous cooking activity encourages children to be more friendly	2
Emotional support and encouragement from parents during	3	Cooking activity encourages children to gain new friends	1	Cooking activity encourages children to be more helpful at home	1
<b>(Shelter staff)</b>	<b>f (n = 2)</b>	<b>(Shelter staff)</b>	<b>f (n = 2)</b>	<b>(Shelter staff)</b>	<b>f (n = 2)</b>
<b>Enhanced family support</b>				<b>Social interaction</b>	
Availability of physical care and support from parents	5	Cooking activity encourages bonding among family and friends	4	Previous cooking activity helps children to be more helpful at home	2
<b>Emotional Support</b>				Previous cooking activity encourages children to be more friendly	3
Encouragement from parents during illness	1	Cooking activity encourages children to gain new friends	1		
		Cooking activity encourages children to be helpful	2		

Parents and shelter staff also perceived social interaction. Based on data in Table 2 parents gave their perspectives on social interaction such as the following: cooking activities encourage bonding among family and friends, as well as gaining new friends.

Meanwhile, the shelter staff gave their perspectives regarding social interaction in which cooking activity promotes bonding among family members and friends, encourages them to gain new friends, and encourages children to help others (Table 2).

Based on Table 2, positive aspects of social well-being under short-term assessment, three patients – particularly Patients 4, 5, and 7 – remembered and appreciated collaboration among classmates during the cooking activity. The staff shelter also perceived this collaboration among the two children, particularly patients 1 and 8, due to the eagerness to participate in the cooking class. One of the children, particularly Patient 8, mentioned bonding during cooking lessons. Five of the parents gave

their perspectives for Patients 1, 4, 6, 7, and 8. Patient 7 has begun to reach out to others to gain more friends. He became closer to the children and his classmates.

### Medium-term Assessment: Social SWB 3 mo after Intervention

**Positive aspects of social well-being.** Three (3) mo after graduation, a medium-term assessment was done based on an interview regarding the children, parents, and shelter staff's emotional and social SWB.

Based on Table 2 social interaction was identified as the positive effect of social subjective well-being under medium-term assessment. The children's previous cooking activities helped them be friendly even after graduation, and some children's previous cooking lessons encourage them to help at home. The parents and shelter staff also confirmed these perceptions among some children.

One of the children, particularly Patient 5, mentioned that previous cooking activities encourage her to be

more social. In comparison, two parents confirmed this, particularly for Patients 5 and 7. Meanwhile, shelter staff gave their perspectives about this, specifically for Patients 2, 3, and 8.

Patient 8 shared that the previous cooking activity helped her to be more helpful at home. Based on the parent's perspectives, it was perceived by one parent, particularly for Patient 8. The shelter staff also perceived it for Patients 1 and 8. The parent of Patient 1 was happy to see her child bond with his peers and become closer to each other because of the cooking activity.

## DISCUSSION

### **The Food Preparation Activity as a Mediating Tool**

In this present study, and in reference to Vygotsky's model, the subject or the doers are the childhood cancer patients and their parents. The object or purpose of the activity is to uplift the children's emotional and social SWB. The mediating tools are the food preparation activities consisting of daily feeding, cooking, and nutrition education (Appendix V Figure 1).

### **Emotional SWB after the Short-term Assessment**

**Positive emotions.** Common positive emotions observed in patients before and right after the intervention were happiness, optimism, and gratitude. After the intervention, self-confidence was added to the list. One research found that self-confidence in cooking can be achieved through cooking interventions (Garcia *et al.* 2016). This is confirmed by a study involving adults who participated in an 8-wk cooking course with a pre and post-test study about their food consumption and confidence in cooking. After 6 mo, there was a significant increase in self-reported food and vegetable intake and cooking confidence (Hutchinson *et al.* 2016).

These reasons for happiness among the patients were likewise confirmed by both parents and shelter staff. Right after the intervention, the patients' happiness was further enhanced by the activities they engaged in during food preparation. For instance, the daily feeding activity offered them the occasion to eat their favorite foods. They were able to taste a number of delicious recipes they themselves prepared. These results are consistent with a study by Barak-Nahum (2016) on the impact of culinary group intervention on the quality of life and well-being of adult cancer patients from the Israeli community cancer center. It was found that healthy food choices positively affect their quality of life. Eating healthy foods and intuitive eating have a positive effect. Research also suggests that people who eat home-cooked meals are

happier and healthier (Wolfson and Bleich 2015). In this present study, healthy foods partaken by the children in a collaborative setting increased their positive emotional well-being. These findings were confirmed in one of the studies investigating 38 healthy participants on their eating happiness and satisfaction experienced at the moment – real-time and real-life – using an event-based ambulatory assessment method with the smartphone data-gathering gadget. Findings indicate that happiness scores are highest on healthy foods such as fruit and vegetables – followed by grain products such as bread, pasta, cereals, and snacks such as sweets, salty food, and pastries (Wahl *et al.* 2017). This concurred with the present study results that healthy food preferences like vegetables and healthy snacks bring happiness.

New knowledge gained from hands-on cooking brought happiness to the children. Cooperation among peers and the involvement of their family members also added enjoyment to their food preparation activities. Freire *et al.* (2014) maintained that social activities in any form are beneficial and may increase well-being among cancer patients. Activities such as play, reading, laughter, massage, and music therapy help divert the children's minds from cancer's adverse effects (National Cancer Institute 2015). Peck (2003) also found out that activities during a health crisis can increase SWB. In this present study, social activities provided positive emotions like happiness.

Optimism was already evident among half of the participants, even before the start of the food intervention activity, but this optimism reached a higher level after the intervention. The knowledge gained from the activity by one participant brought hope that soon she will get well. The positivity of thoughts among these patients helped them go through rough times. Based on studies, positive emotions can aid in a person's overall health and well-being (Bailey & French 2019). Moreover, positivity in life can help uphold physical, intellectual, social, and psychological well-being (Fredrickson *et al.* 2003). Furthermore, positive emotions can help sick people recover from illnesses (Fredrickson and Levenson 1998). A popular theory developed by Fredrickson (2008) called "broaden and build a model of affect" explains that "positive affective experiences can help a person to achieve personal growth and development, will widen one's awareness, and will encourage novel, varied, and exploratory thoughts and actions" (Compton 2005).

Maintaining a positive attitude during illness will somehow help patients to stay focused on their wellness and health. Resiliency during challenges was very evident among these patients. One study investigated the SWB of children with cancer and without cancer. Both groups exhibited positive emotions of courage and determination

stemming from the emotional support of family members, cognitive and self-regulation skills, positive thinking, and motivation (Hexdall and Huebner 2007).

Gratitude was a common emotion among the patients, but it had come from the parental support received prior to the intervention; it was felt more because of the new things they learned during cooking activities. Likewise, prior to the food preparation activity, they expected relief brought by the treatment-stirred excitement, but the inclusion of cooking sessions further boosted this feeling of excitement. Gratitude intervention is one of the recommendations of some institutions to help improve the lives of cancer patients. One study among breast cancer patients examined the effectiveness of being grateful for the well-being of the patients. Post-assessment reveals high levels of “daily psychological functioning, greater perceived support, and greater use of adaptive coping strategies” (Sztachañska *et al.* 2019).

#### **Emotional SWB after the Medium-term Assessment**

**Positive emotions.** Three (3) mo after the intervention, happiness, optimism, gratitude, and self-confidence were still evident in some children. These positive emotions were also apparent among the patients during the initial and short-term assessment interviews. During the initial assessment, the happiness felt by the patients was primarily traced to the cancer treatment. They said it brought relief from pain and bonding moments with family members. The children were grateful for the parental support during shelter activities and their happiness was enhanced by their participation in food preparation activities.

The cooking sessions and daily feedings made them happy to try new recipes and taste delicious fares. The hands-on cooking experiences contributed to their happiness, as these provided opportunities for cooperation and socialization. Happiness still persisted for some children three months after the food intervention. The cooking activity stood out as the source of this happiness as they were able to apply their newfound cooking skills and knowledge, both at the shelter and at home. The children also remember the socialization skills they acquired, as their parents also confirmed that friendships developed as a result of the cooking activities. In addition, both parents and shelter staff were happy to see the children enjoying the food they learned to prepare.

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Cooking helps an individual to focus on the process of cooking, and by doing so, it boosts not just creativity but also happiness (Lewis 2016). Social activities in any form can be beneficial in uplifting cancer patients' well-being (Freire *et al.* 2014). A study dealing with the mentally disabled showed that baking activities could help develop self-confidence and enhance social relationships among family and peers (Haley and McKay 2004). Ben-arye *et al.* (2016) studied the intervention of the "cuisine workshop program." They found that it helped cancer patients emotionally and spiritually support one another aside from increasing their knowledge of food and nutrition. The same beneficial effects were noted among the participants of this study. The children could connect with their parents, felt appreciated, and were given more time to communicate. Most importantly, the cooking activity and nutrition education classes served as a part of their good memories together.

Food-related experiences further improve their sense of optimism. There was newfound hopefulness for some children, a belief in the possibility of being healed 3 mo after the intervention. Gratitude toward parental support has remained inculcated in the children's mindset. On top of this, they were also thankful for the learnings they acquired from the intervention activity.

#### **Short-term Assessment: Social SWB Right after Intervention**

**Positive aspects of social well-being.** The patients confirmed that food preparation activities encouraged them to cooperate, interact and bond with family members. The positive aspects of cooperation or working jointly with others were manifested in the eagerness of the children to help one another in the kitchen and clean-up activities. The children willingly obey their parents and peers in the task of washing kitchen utensils and bringing ingredients to the kitchen area. Others volunteered to set up the stove and do the actual cooking itself. Social interaction likewise improved. The cooking activity became the venue for family communication as it provided the opportunity to connect, as well as show care and appreciation. It also encouraged the children to gain new friends.

Cooking can enhance family relationships. It helps increase subjective social well-being by improving family dynamics. It is also a venue for family communication

since it provides the opportunity to connect and show care and appreciation. Cooking activities can foster child development, define roles, reduce stress, and create good memories (Chen 2013).

### **Social SWB after the Medium-term Assessment**

Initially, the positive aspects of social well-being were confined to family support and encouragement. Right after graduation, the children attributed their enhanced socialization skills to the cooking activities they participated in. There were perceived efforts among them to contribute and cooperate to be able to prepare wholesome meals and follow cooking procedures. Mental health professionals and therapists have proven that social activities like cooking classes help people with depression and anxiety. They found that baking and cooking classes help "boost social skills and confidence" (Evans 2014). In this present study, the cooking sessions helped most children divert their worries into activities worth engaging in.

The shelter staff verified the children's claim that increased sociability and concern for others through the cooking activities helped them gain new friends. This observation was also confirmed by most parents. Three (3) mo after graduation, the friendship among the pediatric cancer patients remained steadfast, as they have established the social circle formed from the shelter activities under the food intervention program.

## **CONCLUSION**

### **Emotional SWB before and after the Program Activities**

Immediately after implementation, a short-term assessment was done. It was found that the children gained self-confidence, a positive effect that contributes to their emotional needs. Self-confidence was also noted 3 mo after the intervention. The children were confident in applying their new knowledge and learnings from the cooking activities.

The children expressed happiness, optimism, and gratitude in both the short-term and medium-term assessments. Cooking helps an individual focus on the process of cooking, boosting not only his creativity but also his happiness (Lewis 2016). Gratitude intervention is one of the recommendations in some institutions to help improve the lives of cancer patients.

While the initial assessment showed that illness may make a person emotionally strong, food intervention activities brought an optimistic perspective to some children. Their

new knowledge gave them the hope to get well eventually, a clear sign of the presence of optimism. This appreciation for new learnings and skills gave the children more reason to be thankful, in addition to the parental support during the initial assessment.

### **Social SWB before and after the Activity**

The initial assessment showed the children's appreciation for family support, but there were complaints about the casualness of interaction with peers and insufficiency of communication with their parents due to their illness. Meanwhile, 3 mo after the graduation, the children remained appreciative of the increased opportunity to interact continuously with fellow cancer patients, who they had befriended during the course of the food intervention activities. In particular, the cooking sessions encouraged them to be more helpful in the kitchen tasks at home. The children could relate with their parents, felt appreciated, and were given more time to communicate. Most importantly, the cooking activity and nutrition education classes served as a part of their good memories together.

## **RECOMMENDATIONS**

Researchers can explore other age groups and cases of chronic diseases using a similar food preparation activity module as a guide. A tracer study can also be conducted to know the effect of applying the food preparation activity framework on a long-term basis. Exploratory research can look into the possibility of garden-based food preparation activities in institutions other than temporary shelters. One of the advocacies of the Home Economics discipline is to educate out-of-school youth in under-served communities and institutions. Training among home economists on module writing for children with special needs can strengthen community extension work using the existing module as a reference. Since online learning is now encouraged, home economists and nutritionists can revise the current module to suit online activities. The developed module can be used to create food preparation activity apps intended for pediatric patients. In addition, graduates of the food preparation activity program should be enjoined to help in developing food-related intervention measures.

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## NOTE ON APPENDICES

The complete appendices section of the study is accessible at <https://philjournsci.dost.gov.ph>

## STATEMENT ON CONFLICT OF INTEREST

All authors declared no conflicts of interest.

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## APPENDIX I

**Table I.** Questionnaires.

Type of questionnaire	Data collection period	Target information
Initial	<ul style="list-style-type: none"> <li>Prior to intervention</li> </ul>	<ul style="list-style-type: none"> <li>Children’s demographic profile</li> <li>Initial status of children’s emotional and subjective well-being prior to sickness (open-ended questions)</li> <li>Parents/staff perspectives on children’s status before and during treatment</li> <li>Blank space for drawing responses of children</li> <li>Researcher’s observations</li> </ul>
Short-term	<ul style="list-style-type: none"> <li>Immediately after the intervention</li> </ul>	<ul style="list-style-type: none"> <li>Children’s code and topics attended in the nutrition education classes</li> <li>Children’s emotional and subjective well-being after graduation (open-ended questions)</li> <li>Feelings after graduation; things learned and effect of the feeding, cooking, and nutrition education sessions</li> <li>Blank space for drawing responses of children</li> <li>Parents/staff perspectives on the children’s emotional and subjective well-being</li> </ul>
Medium-term	<ul style="list-style-type: none"> <li>3 mo after the intervention</li> </ul>	<ul style="list-style-type: none"> <li>Children’s demographic profile</li> <li>Children’s emotional and subjective well-being 3 mo after the program (open-ended questions)</li> <li>Blank space for drawing responses of children</li> <li>Researcher’s observations</li> <li>Parents/staff perspectives on the children’s emotional and subjective well-being</li> </ul>

## APPENDIX II

### Data Collection: Phase 1

This involved module development and validation, ethical board review application, a work plan for funding, recruitment of research assistants, recipe testing, and material preparations.

**Food preparation module development.** Preliminary inquiries and needs assessment among pediatric cancer patients were conducted using a previous exploratory study (Aquino 2017). This was used as a basis for the needs analysis regarding recommended food and meals during cancer treatments and the feasibility of holding cooking classes to ensure that the modules being developed will fit the learners' needs.

Part of the exploratory study was to determine the shelter profile – mission/ vision, organizational setup, regular donors, referring institutions, Child Haus friends and partners, protocols in receiving shelter residents, services and activities offered, daily operations, success stories, plus issues and concerns of children and parents in the shelter. The food service operations were also scrutinized to determine possible collaborations for the implementation of the food preparation activities. The food service operations include menu planning, purchasing, storage, food service equipment, kitchen layout, food preparation and cooking, food quality control, food safety and distribution, dining room and management, and waste management.

Studies on food preparations among adults and children with cancer (Ben-arye *et al.* 2016; Chi 2016; Farmer *et al.* 2018; Raber *et al.* 2017) and cooking manuals for kids (Alberta Health Services 2016; Kids in the Kitchen Program 2002) were also consulted. These literature works provided information on the nutritional management of children with cancer, healthy recipes from the shelter, affordable healthy and delicious recipes to solve children's dietary concerns under treatment, appropriate nutrition education activities for children, and cooking activity guidelines. Best practices were also considered to finalize the module’s relevant topics and structure.

**Module validation.** Validation of the module was done based on evaluation scores of the objectives, subject matter, organization and presentation, language and style, usefulness, and module cover (durability and attractiveness). Average scores were computed and obtained an overall score of 4.80 over 5.

The module was used during the implementation of the food preparation activity for almost 2 mo. Interviews were conducted about the subjective well-being of children with cancer.

### Data Collection: Phase 2

This comprised the implementation of the food preparation activities: daily feeding, nutrition education, and cooking activities.

**Implementation of the food preparation activities.**

The food preparation activity began a week after the registration and initial assessment interview of the participants. The implementation schedules in 2019 were as follows: October 05, 12, 19, and 26; November 16 and 23. The modified two-week cycle menu for the daily feeding was followed.

**Table II.** Two-week cycle menu for the feeding program.

Day	Breakfast	Lunch	Dinner
1	Squash omelet Bread/ rice/ porridge Fruit Pandan with <i>kalamansi</i> juice	Fish <i>sinigang</i> with <i>petsay/ kangkong</i> Rice <i>Kalabasa</i> flan	<i>Suwam na mais</i> Rice Fruit Apple and carrot juice
2	<i>Chamorado</i> with <i>malunggay</i> powder Purple cooler Fruit	<i>Petsay guisado</i> Fried fish Rice Fresh melon juice or shake	<i>Patola na may halong miswa</i> and chicken balls Rice Fruit
3	<i>Lomi</i> with vegetables <i>Pandesal</i> Lemon grass juice Fruit	<i>Munggong guisado</i> with spinach and fish Rice Milky <i>gulaman</i>	Sweet and sour fish Rice Fresh mango juice Fruit
4	Creamy macaroni with vegetables <i>Pandesal</i> Pandan Juice Fruit	<i>Guinataang isda</i> with <i>malunggay</i> Rice Banana and apple shake Fruit	<i>Tinolang manok</i> with <i>malunggay</i> Rice Fruit
5	Chicken congee <i>Pandesal</i> Purple cooler	<i>Adobong manok</i> with Vegetable Rice Squash <i>pastillas</i> Unsweetened pineapple juice	Fish <i>siomai</i> with vegetables in <i>sotanghon/ miswa</i> Rice Fruit
6	Egg omelet with <i>malunggay</i> flakes Bread/ rice Turmeric milk Fruit	<i>Miswa</i> with <i>bola-bola</i> Rice Orange and carrot juice Fruit	Fried chicken and <i>chopsuey</i> Rice Fruit
7	Rainbow soup <i>Pandesal</i> Pandan Juice Fruit	Fish <i>teriyaki</i> Rice <i>Dalandan</i> juice or any fruits in season	Fish- <i>kalabasa</i> nuggets <i>Petsay guisado</i> Rice Fruit
8	<i>Congee</i> with egg <i>Pandesal</i> Turmeric milk Fruit	Cassava-fish croquettes Rice Orange and mango medley Fruit	<i>Munggo</i> with <i>tinapa</i> Rice <i>Kalabasa</i> flan Fruit
9	<i>Arroz caldo</i> with chicken liver and <i>malunggay</i> leaves Rice Pandan juice	Rainbow vegetable dish Rice Watermelon fruit	Fish <i>sarciado</i> Rice Fruit juice in season Fruit
10	Chicken croquettes Rice Cucumber and pineapple juice Fruit	Fish balls with <i>petsay</i> Rice Orange, carrot juice Fruit	<i>Tokwa</i> with <i>tausi</i> Rice Fruit
11	Oatmeal with milk and fruits <i>Pandesal</i> Turmeric milk	Fish croquettes Rice Pineapple and carrot shake Fruit	Chicken <i>afritada</i> Rice Fruit

**Table II.** Cont.

Day	Breakfast	Lunch	Dinner
12	Egg in a nest Turmeric milk Fruit	Fish with <i>misua</i> and vegetables Rice Mango shake Fruit	<i>Munggo</i> burger Clear soup with <i>malunggay</i> flakes Fruit
13	<i>Pancit</i> Molo Bread Purple cooler Fruit	<i>Munggo</i> a la Molo style Rice Vegetable and pineapple juice Fruit	<i>Tokwa</i> and <i>kamote</i> burgers Rice Fruit
14	Canton with vegetables Bread Turmeric milk Fruit	<i>Potcherong tokwa</i> Rice Fruit juice in season Fruit	Corn and cabbage casserole Rice Fruit

The bases for the menu modification are the dietary guidelines for feeding children with cancer (Samour and King 2013; Ramstack and Rosenbaum 1990) and the results from the earlier exploratory study (Aquino 2017). The endorsed menu was approved by the institution and ethics board. The food service management protocol was implemented within the shelter. Meanwhile, assigned parents from the shelter assisted in the marketing and cooking of the daily menus. Procedures and schedules for every session were followed based on the guidelines and lesson plan stated in the module. Field notes and evaluation forms were filled out. Field notes and class evaluation supported some of the findings in the short-term assessment.

**Post-assessment interviews after the intervention.** This consisted of short-term and medium-term assessments. Using the short-term assessment form (after the intervention), each participant and his/her parents were interviewed in the presence of the licensed psychologist, who observed the proceedings. A medium-term assessment was done 3 mo after graduation following the same procedure as in the short-term assessment.

## APPENDIX III

### Content and Thematic Analysis

Recorded interviews were transcribed and subjected to content analysis. Data were processed into condensed notes to create codes, categories, and themes. Also, the utterances of the participants were categorized based on applicable keywords or phrases. The drawings were individually scanned, and their interpretations were transcribed. The drawings, along with the interview results, were used for understanding the children's responses. Field notes, written observations, class evaluations, and literature reviews were used to verify the content analysis themes.

### Triangulation Method

A triangulation method was used to validate the responses from both the short-term and medium-term interview assessments. The method involves comparing and contrasting the three groups of participants (children, parent/guardian, and shelter staff) to delineate similarities and differences in their statements. Observations recorded on field notes also aid in confirming their responses.

### Descriptive Statistics

Descriptive statistics were also applied to determine the frequency of responses from the data collected from the interviews and to create a detailed profile of each participant.

## APPENDIX IV

### Demographic Profile

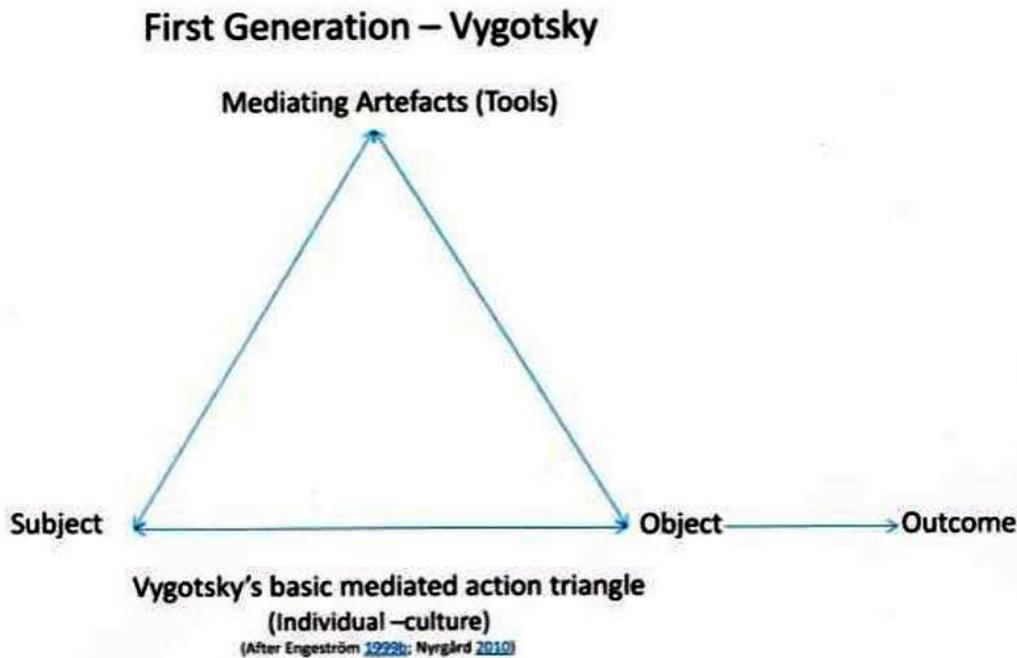
The 7–12 age group was selected because most shelter residents comprise school-age children. Moreover, children between the ages 7–12 yr and older already have a concrete knowledge of objects and are capable of interactive communication, making this stage the best time to enjoy cooking activities (Zhou and Brown 2017).

Of the eight pediatric patient respondents, five were males and three were females. Four (4) belonged to the older age group of 18–21 yr old, and the remaining four belonged to the 8–17 age group. Four patients came from Region 8 or the Eastern Visayas (Northern Samar, Tacloban, and Biliran). There were three from Region 4 (Mindoro, Cavite, and Quezon province), and one from Region 5 (Bicol). Four patients are in middle school (Gr 7–12), 3 are in the elementary level (Gr 1–6), and one finished the first year of college.

The most common form of cancer among these patients is leukemia. Three of them had ALL (acute lymphocytic leukemia), AML (acute myeloid leukemia), and B-cell acute lymphoblastic leukemia. Other forms of cancer are those found in the bones (osteosarcoma), eyes (retinoblastoma), nasopharynx (nasopharyngeal), the gonads or ovary, and testis (germ cell tumor), and cellular tissues (Langerhans cell histiocytosis or LCH). The latter is a "rare cancer that can damage tissue or cause lesions to form in one or more places in the body" (National Cancer Institute n/d).

The majority or six of the patients have undergone cancer treatment for almost 1–2 yr and are still undergoing treatment. The remaining two, who have ALL and LCH, have been going through more than 3 years of treatment since they experienced a relapse or recurrence of the disease.

## APPENDIX V



**Figure I.** Vygotsky's basic mediated action triangle.

Note: First Generation CHAT by Pronacampo9 is licensed under CCBY-SA4.0  
<<https://creativecommons.org/licenses/by-sa/4.0/>>, via Wikimedia Commons.

### Theoretical Framework

In 1920, Vygotsky – a Russian psychologist – and his students developed a theory claiming that being active and responsible can help individuals achieve their personal and social needs. He further claims that human activity is purposeful and carried out by sets of actions using physical or psychological tools. His theory is also based on Aristotle's philosophy that happiness can be achieved by doing "virtuous activity." According to this approach, when one is engaged in "praxis" – that is, practical activities or goal-directed actions, happiness can be achieved. Vygotsky's activity theory is similar to Csikszentmihalyi's flow theory, as it likewise emphasizes "engagement in interesting activities as a key to a happy life" (Subjective Well-being n/d).

Vygotsky's activity triangle; human activity can be explained in a triangular manner, wherein the subject refers to a person or a group engaged in an activity. The object of activity refers to the purpose of the activity. The mediating tool refers to any physical or psychological means utilized to do the activity to produce an outcome, whether positive or negative (Torrison-Steele 2018).

### The Food Preparation Activity as a Mediating Tool

Simultaneously, the outcomes refer to the effects of the food preparation activity on children's emotional and social subjective well-being. The activity theory provides a rich holistic understanding of how people carry out purposeful collective activities with the assistance of mediating tools

(Hasan 1999). These mediating tools can be psychological such as culture, language, and ways of thinking; or material such as a hammer or a computer (Joyes 2006).

In this study, the food preparation program activities are considered the mediating tools among the subjects (children, parents, and shelter staff) and the object (enhancing/ improving the children's emotional and social subjective well-being). It is the medium by which the three major operational activities – daily feeding, nutrition education, and cooking sessions – were carried out to bring about the intended activity outcomes. A food preparation module consisting of welcome introduction, nutrition knowledge, and recipe testing was added as a supplementary tool to systematize activity implementation. Finally, short- and medium-term assessment feedback was also included to monitor and verify improvements in the children's subjective emotional and social well-being.

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